

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Tidewater Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Southeastern Public Service Authority of Virginia
3809 Elm Avenue, Portsmouth, Virginia 23704-7101
Permit No.: VA-61018

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Southeastern Public Service Authority (SPSA) has applied for a Title V Operating Permit for its Municipal Waste Combustor Facilities. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: _____

Air Permit Manager: _____ Date: _____

Regional Permit Manager: _____ Date: _____

I. FACILITY INFORMATION

Permittee

Southeastern Public Service Authority of Virginia
723 Woodlake Drive
Chesapeake, VA 23320-7463

Facility

SPSA Municipal Waste Combustor Facilities
3809 Elm Avenue
Portsmouth, VA 23704-7101

Responsible Official

John S. Hadfield
Deputy Executive Director

Contact Person

Richard M. Cheliras
Environmental Services Administrator
(757) 420-4700

AIRS Identification Number: 51-740-00078

Registration Number: 61018

II. SOURCE DESCRIPTION

SIC Codes: 9511, 4953, 4911, 4961

Waste Plant

9511 – Waste is received on the RDF plant tipping floor and separated into processable and non-processable waste. Processable bulky waste is diverted to the bulky waste shredder for shredding to manageable sizing. This waste is then introduced back on the tipping floor. All processable waste is then introduced on process lines where sorting, sizing and separation of grit, ferrous metal, and aluminum takes place through a series of trommels, magnets, and hand picking stations. Waste is then loaded onto the RDF transfer conveyor where it is transported to the steam plant for combustion.

Steam Plant

4953, 4911, 4961 – The steam plant consists of four combustion trains in which refuse derived fuel (RDF), coal or oil is combusted to produce steam and electricity. The four combustion trains are independent but can operate simultaneously. Each combustion train consists of a boiler, a spray dryer absorber (SDA), and a fabric filter (FF). The units utilize the SDA and FF, as well as good combustion practices (GCP), to reduce the levels of MWC organics (dioxins/furans), MWC acid gases (sulfur dioxide and hydrogen chloride), MWC metals (particulate matter, opacity, cadmium, lead, and mercury), and carbon monoxide prior to exhausting through the stack. Each combustion train is also equipped with a No. 2 fuel oil-fired burner which provides heat during unit startup and shutdown.

Coal Handling and Miscellaneous Activities

Coal is unloaded and transferred to storage or directly to the boilers for combustion via a set of enclosed conveyors. The four transfer points of the conveyor system, as well as the conical for each unit, are equipped with fabric filters to control particulate emissions generated during the transfer process. In addition, the facility operates a diesel-fired standby generator, an auxiliary boiler, two No. 2 fuel oil storage tanks, a lime silo, an ash conveyor (with negligible emissions), and truck traffic, as well as a number of insignificant activities.

The facility is a Title V major source of SO₂, NO_x, CO, PM/PM10, VOC, HCl, HF. This source is located in an attainment area for all pollutants, and is a PSD major source. The steam plant was previously permitted under a PSD Permit issued on March 26, 1984, and last amended on 2/23/01. The waste plant is permitted under a NSR permit issued on August 29, 1977, and last amended on May 29, 1996

III. COMPLIANCE STATUS

The facility is inspected 2-3 times a year. This facility was out of compliance on 10/05/00 for record keeping at the RDF waste plant. On 11/5/99 DEQ found the steam plant out of compliance for a spray dryer absorber pressure gauge not working. The facility has not met the CO emission standards from the RDF boilers since the facility started up. The facility has submitted a compliance plan, however at the present time they are waiting for word from EPA regarding a variance they have requested to NSPS Cb/Eb for CO emissions.

IV. EMISSIONS INVENTORY

A copy of the 2000 annual emission update is attached as Attachment A. Emissions are summarized in the following tables.

2000 Actual Emissions

	Criteria Pollutant Emission in Tons/Year				
Emission Unit	VOC	CO	SO ₂	PM ₁₀	NO _x
Coal Fired boilers	0.3	28.8	20.4	1.92	79.2
RDF Fired boilers	0.00207	420.0	128.0	44.8	1098.4
Generator	.001	0.63	0.19	.21	2.94
Loading Lime				.002	
Coal Storage				0.0001	
Tipping Floor				0.53	
A,B,C Process Lines				36.4	
Totals	0.3	449.4	148.6	83.9	1180.5

2000 Facility Hazardous Air Pollutant Emissions

Pollutant	Hazardous Air Pollutant Emission in Tons/Year
HCl	202.8
HF	1.84
Cadmium Compounds	.009
Lead	.105
Mercury	.007
Dioxin/Furans	.0000295

V. APPLICABLE REQUIREMENTS

A. Emission Unit Applicable Requirements

There are several federal regulations applicable to some of the units at the Southeastern Public Service Authority Refuse Derived Fuel Plant. They are as follows:

- 40 CFR Part 60 Subpart Cb - Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994
- 40 CFR Part 60 Subpart Db - Standards of Performance for Industrial-Commercial- Institutional Steam Generating Units
- 40 CFR Part 60 Subpart Eb - Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commence After June 19, 1996
- 40 CFR Part 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

The following Virginia Administrative Codes are other applicable requirements which apply to the source:

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|--------------------|---|
| 9 VAC 5 Chapter 50 | New and Modified Stationary Sources |
| 9 VAC 5 Chapter 50 | Article 1: Visible Emissions and Fugitive Dust/Emissions |
| 9 VAC 5 Chapter 50 | Article 4: Standards of Performance for Stationary Sources |
| 9 VAC 5 Chapter 50 | Article 5: EPA Standards of Performance for New Stationary Sources |
| 9 VAC 5 Chapter 80 | Part I: Permits for New and Modified Sources |
| 9 VAC 5 Chapter 80 | Article 1: Federal Operating Permits for Stationary Sources |
| 9 VAC 5 Chapter 80 | Article 2: Permit Program Fees for Stationary Sources |
| 9 VAC 5 Chapter 80 | Article 4: Insignificant Activities |
| 9 VAC 5 Chapter 80 | Article 8: Permits for Major Stationary Sources and Major Modifications Locating in Prevention of Significant Deterioration Areas |

B. General Applicable Requirements

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|---------------------|---|
| 9 VAC 5 Chapter 170 | General Administration |
| 9 VAC 5 Chapter 80 | Article 2: Permit Program Fees for Stationary Sources |

C. Periodic Monitoring Requirements

1. Fuel Burning Equipment

The RDF boilers (044, 045, 046, 047) are subject to 40 CFR Part 60 Subpart Cb and Eb while burning RDF and will prove compliance with the standards using the methods described in 60.58b and 60.38b of the NSPS. This includes having COMS to monitor the opacity from these boilers, having CEMs for SO₂, NO_x and CO, conducting annual (no more than 12 calendar months) performance testing to prove compliance with the PM, HCl, HF, Cadmium, Lead, Mercury and Dioxin/Furan emission limits.

The RDF boilers (044, 045, 046, 047) are subject to 40 CFR Part 60 Subpart Db while burning coal and will prove compliance with the standards using the methods described in 60.48b of the NSPS. Due to the requirements listed above for the boilers while burning RDF, the same monitoring requirements shall be in effect for the boilers while burning coal, with the addition of fuel certifications being supplied by the vendor to prove compliance with the sulfur and ash limits.

The RDF boilers (044, 045, 046, 047) use No. 2 fuel oil to start up the boilers and the No. 2 fuel oil certifications must be kept on file as required in the permit. The boilers are not subject to an NSPS while firing oil due to the firing rate limitations (85 mmBtu/hr). By using the daily oil usage and the hours of operating on oil, the facility will calculate and average the hourly oil usage rate to ensure that they do not exceed the 625 gal/hr limit. This limits the boilers to a rated capacity of 85 mmBtu/hr, which keeps the facility from being applicable to Db requirements when firing oil.

The spreadsheet found in [Appendix A](#) of this Statement of Basis demonstrates that with the throughput limits for coal, oil and processed RDF, it is unlikely that any of the annual emission limits will be exceeded at the RDF (044, 045, 046, 047) boilers. [Appendix B](#) is a spreadsheet for the auxiliary boiler and the generator and it shows that it is unlikely the emission limits for these units will be exceeded.

The spray dryer absorbers shall be monitored by the water/lime slurry injection flow. This flow shall be checked and logged at a frequency of once per week. The fabric filters shall be equipped with a differential pressure gauge. This gauge shall be monitored and logged at a frequency of once per week.

Periodic visual evaluations shall be performed on the generator once each time the unit is operating (due to the hourly limits of operation) for compliance with opacity standards. If such periodic evaluations indicate any opacity condition, the permittee shall take appropriate action to correct the cause of the opacity such that no visible emissions exist. If such corrective action fails to correct the problem, the permittee shall conduct a visible emissions evaluation (VEE) utilizing EPA Method 9 (reference 40 CFR 60, Appendix A). The permittee shall maintain a log to demonstrate compliance with this condition. The log shall include the date and time of the observations, the observer's name, whether or not there were visible emissions, any VEE recordings and any necessary corrective action. If the equipment has not been operated during the week, it shall be noted in the logbook that the equipment was not operated and that a visual observation was not required. The logbook shall be kept at the facility and available for inspection by the DEQ for the most recent 5-year period.

Opacity monitoring for the auxiliary boiler shall be done at least once during each daylight shift when the boiler is operating. An observer certified in accordance with EPA Method 9 (reference 40 CFR 60, Appendix A) will perform a 6-minute visible emission observation consisting of 24 consecutive readings of the stack for the auxiliary boiler. If the average opacity for a 6-minute set of readings made in accordance with the above exceeds 10 percent, the observer will collect two additional 6-minute sets of visible emission readings for a total of three data sets. Results from these observations will be recorded in a logbook, listing the date and time of each visible emission observation and the resulting opacity.

The hours of operation for the auxiliary boiler and the generator will be monitored and a monthly rolling average shall be available. The fuel supplier certifications for the No. 2 fuel oil shall prove compliance to the fuel limits specified in Condition III.A.11. The annual capacity factor will have to be calculated for the auxiliary boiler, and will be calculated as a monthly rolling average.

2. Coal handling operations

Periodic visual evaluations shall be performed on the coal pile once each calendar week and on the conveyors once each calendar week while operating. If such periodic evaluations indicate any opacity condition, the permittee shall take appropriate action to correct the cause of the opacity such that no visible emissions exist. If such corrective action fails to correct the problem, the permittee shall conduct a visible emissions evaluation (VEE) utilizing EPA Method 9 (reference 40 CFR 60, Appendix A). The permittee shall maintain a log to demonstrate compliance with this condition. The log shall include the date and time of the observations, the observer's name, whether or not there were visible emissions, any VEE recordings and any necessary corrective action. If the equipment has not been operated during the week, it shall be noted in the logbook that the equipment was not operated and that a visual observation was not required. The logbook shall be kept at the facility and available for inspection by the DEQ for the most recent 5-year period.

To demonstrate compliance with the emission limits in the permit the permittee shall perform monitoring of the wet suppression system and the fabric filters to ensure that they are operating properly. The following calculation shows how the facility will comply with these limits as long as the throughput limit for coal is not exceeded:

$$4375 \text{ tons coal/yr} \times 4 \text{ boilers} \times 3.02 \text{ lb PM or PM}_{10}/\text{ton coal} / 2000 \text{ lb/ton} = 26.4 \text{ ton/yr}$$

3. RDF Handling Operations

Fabric filters on the process lines and the shredder shall have periodic visual evaluations performed once each calendar week. If such periodic evaluations indicate any opacity condition, the permittee shall take appropriate action to correct the cause of the opacity such that no visible emissions exist. If such corrective action fails to correct the problem, the permittee shall conduct a visible emissions evaluation (VEE) utilizing EPA Method 9 (reference 40 CFR 60, Appendix A). The permittee shall maintain a log to demonstrate compliance with this condition. The log shall include the date and time of the observations, the observer's name, whether or not there were visible emissions, any VEE recordings and any necessary corrective action. If the equipment has not been operated during the week, it shall be noted in the logbook that the equipment was not operated and that a visual observation was not required. The logbook shall be kept at the facility and available for inspection by the DEQ for the most recent 5-year period.

The throughput of unprocessed and processed solid waste shall be recorded and available as the sum of each consecutive 12-month period.

An example of how the facility will show compliance with the emission limits in the permit are as follows:

$$\text{Emission factor for the fabric filters is } 0.02 \text{ gr/dscf}$$

$$0.02 \text{ gr/dscf} \times 5700 \text{ cf/min} / 7000 \text{ gr/lb} \times 60 \text{ min/hr} = 0.98 \text{ lb/hr}$$

$$0.98 \text{ lb/hr} \times 4400 \text{ hrs/yr} / 2000 \text{ lb/ton} = 2.2 \text{ ton/yr}$$

4. Storage Tank Requirements

The permittee shall keep readily accessible records showing the dimension of each storage vessel and an analysis showing the capacity of the storage vessel. Records of the amounts of each shipment shall also be available.

There are no visible emission limits from these storage tanks because the tanks contain No. 2 fuel oil, which has no visible emissions.

5. Lime Silo Requirements and Miscellaneous Equipment

Periodic visual evaluations shall be performed on the fabric filters once each calendar week while the silos are being loaded. If such periodic evaluations indicate any opacity condition, the permittee shall take appropriate action to correct the cause of the opacity such that no visible emissions exist. If such corrective action fails to correct the problem, the permittee shall conduct a visible emissions evaluation (VEE) utilizing EPA Method 9 (reference 40 CFR 60, Appendix A). The permittee shall maintain a log to demonstrate compliance with this condition. The log shall include the date and time of the observations, the observer's name, whether or not there were visible emissions, any VEE recordings and any necessary corrective action. If the equipment has not been operated during the week, it shall be noted in the logbook that the equipment was not operated and that a visual observation was not required. The logbook shall be kept at the facility and available for inspection by the DEQ for the most recent 5 year period.

Recordkeeping is required to prove that the lime throughput limit is not exceeded.

Periodic visual evaluations shall be performed on the Fire Pump Diesel Engine once each time the unit is operating. If such periodic evaluations indicate any opacity condition, the permittee shall take appropriate action to correct the cause of the opacity such that no visible emissions exist. If such corrective action fails to correct the problem, the permittee shall conduct a visible emissions evaluation (VEE) utilizing EPA Method 9 (reference 40 CFR 60, Appendix A). The permittee shall maintain a log to demonstrate compliance with this condition. The log shall include the date and time of the observations, the observer's name, whether or not there were visible emissions, any VEE recordings and any necessary corrective action. If the equipment has not been operated during the week, it shall be noted in the logbook that the equipment was not operated and that a visual observation was not required. The logbook shall be kept at the facility and available for inspection by the DEQ for the most recent 5 year period.

VII. STREAMLINED REQUIREMENTS

The following conditions in the NSR permit have not been included for the reasons provided:

Condition 23 e of the 2/23/01 permit has been removed because certification from the oil companies no longer list the sulfur content of the fuel, they only state that the fuel meets the requirements of ASTM.

Condition 6 of the 5/29/96 Permit has been changed to reflect the removal of the cyclones. No parts of the condition which pertain to cyclones is applicable since the cyclones have been removed.

VIII. GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal Operating Permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

IX. FUTURE APPLICABLE REQUIREMENTS

None

X. INAPPLICABLE REQUIREMENTS

40 CFR Part 60 Subpart Db - when burning No. 2 fuel oil the 045, 046, 047, 048 boilers are not applicable to Subpart Db because the auxiliary burners are rated at 87 mmBtu/hr and the applicability for this NSPS is 100 mmBtu/hr

XI. COMPLIANCE PLAN

The facility has submitted an updated compliance plan and has completed several projects (the least expensive for the most gain) on the plan. At this time the facility is waiting for a determination from EPA regarding a request for a variance to the NSPS CO limit that they have submitted to EPA in September 2001. The letter requesting the variance is attached as well as the new compliance plan. See attached.

XII. CONFIDENTIAL INFORMATION

None

XIII. PUBLIC PARTICIPATION

The proposed permit was placed on public notice in the Virginian Pilot from December 30, 2001 to January 28, 2002.